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| 09/903,307      | 07/11/2001  | Michael R. Sogard    | PA0272-US/11269.30  | 1029             |

7590 09/25/2003

STEVEN G. ROEDER  
THE LAW OFFICE OF STEVEN G. ROEDER  
5560 Chelsea Avenue  
La Jolla, CA 92037

EXAMINER

NGUYEN, LAM S

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
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2853

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/903,307

Applicant(s)

SOGARD ET AL.

Examiner

LAM S NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

The drawings are objected to because FIG. 1-17B are informal. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

Claims 16 and 30 are objected to because of the following informalities: Claim 30 depends on claim 16, but they are identical. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4, 6, 8-11, 13, 16, 18-21, 22, 25-27, 30, 32-35, 36-37, 40-44, 47, 49-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakai (US 5214290).

Sakai discloses a stage assembly that moves a device along a Y axis (FIG. 1), the stage assembly comprising:

a device stage that retains the device (FIG. 1, element 13-14);

a stage mover assembly connected to the device stage, the stage mover assembly moving the device stage along the Y axis (FIG. 1: a corresponding mover that moves element 16 in Y direction); and

a first follower frame that supports the device stage along a Z axis (**Referring to**

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**claim 22)**, the first follower frame moving along the Y axis (FIG. 1: the left element 16).

**Referring to claims 2, 37:** wherein the stage mover assembly moves the device stage along an X axis relative to the first follower frame (FIG. 1, elements 20-21).

**Referring to claim 3:** further comprising a first follower mover that moves the first follower frame along the Y axis (FIG. 1, elements 19, 21).

**Referring to claim 4:** wherein the first follower mover moves the first follower frame along the Y axis substantially concurrently as the stage mover assembly moves the device stage along the Y axis (FIG. 1: elements 16 and 14 concurrently move in Y direction).

**Referring to claim 6:** further comprising a first follower guide (FIG. 1, element 18) that supports the first follower frame.

**Referring to claims 8, 40:** wherein the first follower frame supports the device stage near a first table side of the device stage (FIG. 1: the left element 16 supports the left side of the stage).

**Referring to claims 9, 25, 41:** further comprising a second follower frame that supports the device stage along the Z axis, the second follower frame moving along the Y axis (FIG. 1: the right element 16).

**Referring to claims 10, 25, 42:** wherein the first follower frame and the second follower frame are moved substantially concurrently, with the device stage along the Y axis (FIG. 1: the left and right elements 16 move concurrently in Y direction).

**Referring to claims 11, 26, 43:** wherein the first follower frame supports the device stage near a first table side of the device stage and the second follower frame supports the device

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stage near a second table side of the device stage (FIG. 1: two elements 16 (left and right) support the left and right sides of the stage).

**Referring to claims 13, 27, 44:** wherein the first follower frame and the second follower frame support the device stage in a kinematic manner (FIG. 1).

**Referring to claim 16, 18, 30, 32, 47, 49:** (Assumed that claim 30 depends on claim 22) further comprising a line that is connected to the device stage, the line being secured to the first follower frame wherein the line carries electrical current (FIG. 1 and 6: a corresponding electrical current connected to the motor 21 to control the moving of the follower frames and the stage).

**Referring to claims 19, 33, 50:** an exposure apparatus including the stage assembly of claim 1 (FIG. 2).

**Referring to claims 20, 34, 52:** a device manufactured with the exposure apparatus according to claim 19 (FIG. 2).

**Referring to claims 21, 35, 51:** a wafer on which an image has been formed by the exposure apparatus of claim 19 (FIG. 2).

2. Claims 1, 14-15, 22, 28-29, 36, 45-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Sloyan (US 4120210).

Sloyan discloses a stage assembly that moves a device along a Y axis (FIG. 1), the stage assembly comprising:

a device stage that retains the device (FIG. 1, elements 10 and 15);

a stage mover assembly connected to the device stage, the stage mover assembly moving the device stage along the Y axis (FIG. 1: element 14 and 16); and

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a first follower frame that supports the device stage along a Z, the first follower frame moving along the Y axis (FIG. 1, element 17).

**Referring to claim 14, 28, 45:** wherein the device stage includes a first table section and a second table section that is movable relative to the first table section to separate the device stage (FIG. 1, elements 15 and 10).

**Referring to claim 15, 29, 46:** wherein each of the table sections retains at least one device (FIG. 2, elements 10, 15).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5, 7, 17, 23-24, 31, 38-39, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US 5214290) in view of Sugishima et al. (US 4684315).

Sakai discloses the claimed invention as discussed above except wherein the first follower frame includes a stage channel for receiving a portion of the device stage and a pair of opposed stage fluid bearings that support the device stage relative to the stage channel and allow device stage to move along an X axis relative to the first follower frame (**Referring to claims 5, 23, 38**), further comprising a first pair of opposed, guide fluid bearings and a second pair of opposed, guide fluid bearings that support the first follower frame relative to the first follower guide along an X axis and along a Z axis and allow for movement of the first follower frame

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relative to the first follower guide along the Y axis (**Referring to claims 7, 24, 39**), and wherein the line provides fluid to the device stage (**Referring to claims 17, 31, 48**).

Sugishima et al. disclose wherein the first follower frame (FIG. 2, element 11) includes a stage channel (FIG. 2: the space between the upper and lower element 11 and 12) for receiving a portion of the device stage (FIG. 2, element 3) and a pair of opposed stage fluid bearings (FIG. 2, element 11-12) that support the device stage relative to the stage channel and allow device stage to move along an X axis relative to the first follower frame (**Referring to claim 5**), further comprising a first pair of opposed, guide fluid bearings and a second pair of opposed, guide fluid bearings that support the first follower frame relative to the first follower guide along an X axis and along a Z axis and allow for movement of the first follower frame relative to the first follower guide along the Y axis (FIG. 2) (**Referring to claim 7**), and wherein the line provides fluid to the device stage (FIG. 2: a corresponding line provides N2 to the inlet 10)(**Referring to claims 17, 31, 48**).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the stage assembly disclosed by Sakai such that including a stage channel for receiving a portion of the device stage and pairs of opposed stage fluid bearings that support the device stage relative to the stage channel as disclosed by Sugishima et al. The motivation of doing so is to achieve frictionlessly supporting a working table that is moving in X direction (or Y direction) as taught by Sugishima et al. (column 3, line 60-65).

***Allowable Subject Matter***

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4. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Referring to claim 12:** The most pertinent arts Sakai (US 5214290) and Sugishima et al. (US 4684315) fail to disclose wherein the stage mover assembly includes a first Y stage mover and a second Y stage mover, and the follower frames are positioned between the first Y stage mover and the second Y stage mover. Therefore, the claimed invention is not disclosed by the cited prior arts.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (703)308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LN

September 3, 2003

  
Stephen D. Meier  
Primary Examiner